MedicalXpress

# Scientists perform large asian genome-wide association study on kidney disease

December 29 2011

Singapore and China scientists, headed by Dr Liu Jianjun, Senior Group Leader and Associate Director of Human Genetics at the Genome Institute of Singapore (GIS) and Dr Yu Xueqing, a nephrologist at the 1st Affiliated Hospital of the Sun Yat-Sen University, have identified new susceptibility genes for the kidney disease Immunoglobulin A Nephropathy (IgAN). This discovery, reported in the advance online issue of *Nature Genetics* on December 25, 2011, brings scientists closer to understanding the disease and working towards its cure.

IgAN is a kidney disease characterized by the deposit of IgA in the mesangial area of glomeruli. Disease prevalence among Asians is as high as 3.7%, less common in Caucasian population (up to 1.3%) and very rare among individuals of African ancestry. It is the most common cause of kidney failure among Asian populations, 15-40% of the patients end up on dialysis or require kidney transplants. The pathogenesis of IgAN is not clear, but both genetic and environmental factors likely contribute to its development.

In order to identify susceptibility genes for IgAN, Drs Liu and Yu and their collaborators carried out a large genome-wide association study of IgAN in Chinese Han population. First, they performed a comprehensive genome-wide analysis of common genetic variants in 1434 patients and 4270 controls. Subsequently, they investigated 61 regions of human genome for a validation study in 2703 patients and 3464 controls. The researchers discovered two novel susceptibility genes,TNFSF13 on 17p13 and DEFA on 8p23 as well as several HLA alleles and haplotypes

within MHC region that are associated with IgAN development. They further found that the risk variants within MHC could also influence the clinical symptoms of IgAN patients. The newly discovered susceptibility loci implicate the genes related to innate immunity and inflammation, suggesting their important role in the development of IgAN. Their study also confirmed the previously reported susceptibility locus on 22q12 in Chinese and European populations.

Dr Liu said: “The discovery of the new disease susceptibility loci is a major breakthrough of IgAN research. It is interesting to see that some genetic variants can influence both susceptibility and clinical presentation of the disease.” Dr Yu added: “These findings offer us opportunities to identify important biological pathways involved in IgAN development and further explore novel approaches to intervene and thus prevent affected patients from developing severe kidney damage.”

**More information:** A Genome-wide Association Study in Han Chinese Identifies Multiple Susceptibility loci for IgA Nephropathy, *Nature Genetics*, 25 December 2011 (AOP)

Provided by Agency for Science Technology and Research (A*STAR)